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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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PHILADELPHIA PA 19103

EXAMINER
SHACKELFORD, H

ART UNIT	PAPER NUMBER
3616	22

DATE MAILED: 05/29/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/742,520

Applicant(s)
UNGEHUSRI

Examiner
H. SHACKELFORD

Group Art Unit
3616



☒ Responsive to communication(s) filed on Feb 10, 1998

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1, 4, 5, and 12-23 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 13-17 is/are allowed.

☒ Claim(s) 1, 4, 5, 12, and 18-23 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 12, 18-20, and 22 are rejected under 35 U.S.C. § 103 as being unpatentable over Phillips or Ashton or applicant's admitted prior art figure 1 in view of Himes.

Ashton discloses a swivel joint having a flow passage having a hollow male connector, for example at 42b, with a plurality of outer annular arcuate grooves formed on the outer surface of the first end. They also show a hollow tubular female connector 48 having an annular recess which receives the outer surface of the male member, a plurality of inner annular grooves, and a shoulder adjacent the seal 50 and the first end of the male member. A plurality of ball bearings 49 are received in each race to facilitate rotation of the male and female connectors. Phillips and applicant's admitted prior art disclose similar structure.

However, the radius of the arcuate grooves greater than the radius of each adjacent groove closer to the first end of the male member and the female member having corresponding inner grooves are not disclosed.

Himes teaches providing the ball bearings in a rotatable shaft coupling in a tapered configuration wherein the radius of the arcuate grooves are greater than the radius of each adjacent groove closer a first end of the assembly.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a tapered formation of the bearings as seen in Himes to the rotatable pipe couplings of Phillips or Ashton or applicant's figure 1 such that the radius of grooves of the male and female members are greater than each adjacent groove closer to the shoulder (of the female member) and the first end (of the male member) since Himes teaches that the tapered configuration prevents any possibility of seizing or binding, which may result from expansion due to high temperatures.

3. Claims 4, 5, 21 and 23 are rejected under 35 U.S.C. § 103 as being unpatentable over Phillips or Ashton or applicant's admitted prior art figure 1 in view of Himes and Tauber, Jr. et al.

Ashton discloses a swivel joint having a flow passage having a hollow male connector, for example at 42b, with a plurality of outer annular arcuate grooves formed on the outer surface of the first end. They also show a hollow tubular female connector 48 having an annular recess which receives the outer surface of the male member, a plurality of inner annular grooves, and a shoulder adjacent the seal 50 and the first end of the male member. A plurality of ball bearings 49 are received in each race to facilitate rotation of the male and female connectors. Phillips and applicant's figure 1 disclose similar structure

However, the radius of the arcuate grooves greater than the radius of each adjacent groove closer to the first end of the male member and the female member having corresponding inner grooves are not disclosed.

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Himes teaches providing the ball bearings in a rotatable shaft coupling in a tapered configuration wherein the radius of the arcuate grooves are greater than the radius of each adjacent groove closer a first end of the assembly. Tauber, Jr. et al. teaches of the recessed annular portions with an annular seal as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a tapered formation of the bearings as seen in Himes to the rotatable pipe couplings of Phillips or Ashton or applicant's figure 1 such that the radius of grooves of the male and female members are greater than each adjacent groove closer to the shoulder (of the female member) and the first end (of the male member) since Himes teaches that the tapered configuration prevents any possibility of seizing or binding, which may result from expansion due to high temperatures.

It would also have been obvious to provide the recessed portions and the seal as seen in Tauber, Jr. et al. to the assembly of Phillips or Ashton or applicant's figure 1 in view of Himes since such seals are well known for use in a swivel joints of similar construction, which is "not affected by high pressure and/or temperature cycling".

4. Claims 13-17 are allowable over the prior art of record.
5. Applicant's arguments filed 2-13-98 have been fully considered but they are not persuasive.

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Applicant argues that Himes is non-analogous with Phillips or Ashton, therefore, improperly combined. Correctly, applicant cites the two step test for determining whether a particular reference is analogous: 1) same field of endeavor, regardless of the problem addressed; and 2) not within the same field of endeavor and is reasonably pertinent to the particular problem with which the inventor is involved.

In addressing the first step, applicant has defined the field of endeavor as "swivel joints for coupling fluid conducting pipes..., such as used in the petroleum industry." The examiner disagrees with such a narrow definition of the particular "field of endeavor" at hand. It is the examiner's position that both the prior art of Himes and the couplings of Phillips or Ashton (as well as the present invention) are directed to coaxial members made to rotate relative to one another using a plurality of ball bearings lined in the axial direction. In the case of Himes, a shaft is used. In the case of Phillips or Ashton, pipes or hollow shafts are used. As taught in Albert, Jr. the same connection for conduits or hollow member having an axial bore that is capable of serving as fluid passage, can be used to connect solid shafts as well. Since at least one of the tests for determining whether a reference is analogous art is met, the rejection stands.

Applicant also argues that no motivation is present to apply the stepped bearing configuration of Himes with the fluid handling devices of Phillips or Ashton. Himes uses the stepped bearing surfaces for "automatically adjust itself to take up any play and properly seat the bearing surfaces, whereby a maximum load may be carried at high speeds with a minimum of friction and without the liability of seizure and chatter (see col. 1, lines 20-30)." Since the stepped

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configuration has such advantages, as well as being commonly used in a variety of applications as seen in Hoffman, Badger, Rohn, and GB 15,984, such combination is deemed proper. Applicant should note that it has been held that prior art motivation may be different than applicant's motivation while still supporting a conclusion of obviousness. In re Linter 458 F2d 1013; 173 USPQ 560 (1972).

6. Claims 13-17 are allowed.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoshino discloses a drilling device having a flow passage and bearings located at different diameters.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Shackelford whose telephone number is (703) 308-2978.



**H. SHACKELFORD
PATENT EXAMINER
GROUP 3600**

hcs
May 22, 1998